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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,457	09/23/2003	David L. Hill	2207/794402	9481

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EXAMINER

BAKER, PAUL A

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,457

Applicant(s)

HILL ET AL.

Examiner

Paul A. Baker

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-16 and 21-26 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-12 and 18 is/are rejected.
- 7) ☒ Claim(s) 5, 9, 13, 17, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/23/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Bondi et al., US Patent 6,401,212.

In regards to claim 1, Bondi discloses a transaction queue for an agent that operates according to a dynamic priority scheme, the transaction queue operating according to a default priority scheme and engaging a second priority scheme when a congestion event is detected in figure 3a.

In regards to claim 18, Bondi discloses a transaction queue, comprising:
a controller (figure 2 element 26),
a plurality of queue registers, each having an address field (in column 4 lines 63-67) and status fields associated with a pair of transactions related to the address, wherein, in response to a congestion event, the controller modifies one of the status

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fields in a register to invalidate the respective transaction in column 7 line 60 through column 8 line 22.

Claims 2, 4, 6, 8, 10 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanai et al. US Patent 6,341,335.

In regards to claim 2, Kanai discloses in an agent, a management method for external transactions, comprising:

 queuing data of a plurality of read requests in figure 9 element 211, and
 for each queued request, storing data of a blind prefetch transaction associated with the respective request figure 9 element 218,
 when a transaction congestion event occurs, disabling selected stored prefetch requests figure 9 element 217.

In regards to claim 4, Kanai discloses the transaction congestion event occurs when a queue that stores the queued request becomes full in figure 9 element 218.

In regards to claim 6, Kanai discloses in an agent, a management method for external transactions, comprising:

 queuing data of a plurality of external bus transactions in figure 9 element 211,
 for at least one queued transaction, storing data of a blind prefetch transaction in

association with the respective transaction figure 9 element 218,
when a transaction congestion event occurs, disabling the blind prefetch
transaction figure 9 element 217.

In regards to claim 8, Kanai discloses the transaction congestion event occurs
when a queue that stores the queued request becomes full in figure 9 element 218.

In regards to claim 10, Kanai discloses in an agent, a management method for
external transactions, comprising:

queuing data of a plurality of read requests, certain read requests related to
executions being performed by an agent core, certain other read requests related to
data being prefetched in figure 9 elements 211 and 218,

when a transaction congestion event occurs, disabling the prefetch requests
figure 9 element 217.

In regards to claim 12, Kanai discloses the transaction congestion event occurs
when a queue that stores the queued request becomes full in figure 9 element 218.

Claims 2, 3, 6, 7, 10 and 11 are rejected under 35 U.S.C. 102(e) as being
anticipated by Culler "Parallel Computer Architecture" in view of Bondi et al., US Patent
6,401,212.

In regards to claim 2, Culler discloses in an agent, a management method for external transactions, comprising:

 queuing data of a plurality of read requests, and

 for each queued request, storing data of a blind prefetch transaction associated with the respective request on page 882, first paragraph,

 However Culler does not disclose when a transaction congestion event occurs, disabling selected stored prefetch requests.

 Bondi discloses disclose when a transaction congestion event occurs, disabling selected stored prefetch requests in 3a. Culler discloses a general means for prefetching in a processor system but does not disclose means for reducing bus traffic. Bondi discloses a means for reducing prefetch traffic when resources are burdened for the purpose of reducing overall latency of memory requests on the system bus. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Bondi's resource burden by prefetch operations within Culler's prefetching scheme.

 In regards to claim 3, Bondi discloses the transaction congestion event occurs when a number of queued requests exceeds a predetermined threshold in figure 3a element 32.

In regards to claim 6, Culler discloses a management method for external transactions, comprising:

 queuing data of a plurality of external bus transactions,

 for at least one queued transaction, storing data of a blind prefetch transaction in association with the respective transaction on page 882, first paragraph,

 However Culler does not disclose when a transaction congestion event occurs, disabling the blind prefetch transaction.

 Bondi discloses disclose when a transaction congestion event occurs, disabling the blind prefetch transaction in 3a. Culler discloses a general means for prefetching in a processor system but does not disclose means for reducing bus traffic. Bondi discloses a means for reducing prefetch traffic when resources are burdened for the purpose of reducing overall latency of memory requests on the system bus. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Bondi's resource burden by prefetch operations within Culler's prefetching scheme.

In regards to claim 7, Bondi discloses the transaction congestion event occurs when a number of queued requests exceeds a predetermined threshold in figure 3a element 32.

In regards to claim 10, Culler discloses in an agent, a management method for external transactions, comprising:

queuing data of a plurality of read requests, certain read requests related to executions being performed by an agent core, certain other read requests related to data being prefetched on page 882, first paragraph,

However Culler does not disclose when a transaction congestion event occurs, disabling the prefetch requests.

Bondi discloses disclose when a transaction congestion event occurs, disabling the prefetch requests in 3a. Culler discloses a general means for prefetching in a processor system but does not disclose means for reducing bus traffic. Bondi discloses a means for reducing prefetch traffic when resources are burdened for the purpose of reducing overall latency of memory requests on the system bus. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Bondi's resource burden by prefetch operations within Culler's prefetching scheme.

In regards to claim 11, Bondi discloses the transaction congestion event occurs when a number of queued requests exceeds a predetermined threshold in figure 3a element 32.

Allowable Subject Matter

Claims 5,9,13,17,19,20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-16,21-26 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art of record nor combination thereof discloses a method of prefetching including both blind prefetching and patterned prefetching wherein upon a transaction congestion event occurring, prefetching is disabled, invalidated or removed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Baker whose telephone number is (571)272-4203. The examiner can normally be reached on M-F 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mano Padmanabhan
11/24/05

PB

**MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER**